

Automotive Technology 6th Edition

Chapter 95 – Fuel Cells and Advanced Technologies

Lesson Plan



CHAPTER SUMMARY:

1. Fuel-cell technology, refueling with hydrogen, and direct methanol fuel cells
 2. Fuel-cell vehicle systems, fuel-cell hybrid vehicles, and hydrogen storage
 3. Ultracapacitors, fuel-cell vehicle transaxles, and hydraulic hybrid storage system
 4. HCCI, wind power, and hydroelectric power
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OBJECTIVES:

1. Explain how a fuel cell generates electricity and list advantages and disadvantages of fuel cells.
 2. List the types of fuel cells and vehicle systems that use them.
 3. Explain how ultracapacitors and transaxle work in fuel-cell hybrid vehicles.
 4. Discuss the use of hydraulic pressure as an energy source.
 5. Describe the HCCI combustion process. discuss alternative electricity sources.
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet:** Electric/Fuel Cell Vehicle Identification
 2. Chapter PowerPoint
 3. Chapter Crossword Puzzle and Word Search
 4. Animations: Fuel Cell
 5. Videos: Alternative Fuel: Water Powered Cars Part 1 (time 10:25)
 6. Videos: Alternative Fuel: Water Powered Cars Part 2 (time 3:42)
 7. Videos: Alternative Fuel Vehicles (time 2:55) and Fuel Cell Demo (time 6:56)
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ACTIVITIES:

1. **Task Sheet:** Have students complete Electric/Fuel Cell Vehicle Identification Task Sheet.
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ASSIGNMENTS:

1. Chapter crossword and word search puzzles.
 2. Complete end of chapter 10 question quiz.
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CLASS DISCUSSION:

1. Review and group discussion chapter Frequently Asked Questions and Tech Tips sections.
 2. Review and group discussion of the five (5) chapter Review Questions.
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NOTES AND EVALUATION:
